Electronic TUBES

6CM7

DISSIMILAR DOUBLE TRIODE

FOR TV VERTICAL-DEFLECTION OSCILLATOR AND AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6CM7 is a miniature tube which contains two dissimilar medium-mu triodes in one envelope. It is intended for use as a combined vertical-deflection oscillator and amplifier in television receivers. In this application, section one may be used as a conventional blocking oscillator, while section two is particularly adapted for vertical amplifier service as a result of its high-perveance characteristics and its 5-watt plate dissipation rating.

In addition the 6CM7 features a controlled heater warm-up characteristic which makes it especially suited for use in television receivers which employ 600-milliampere series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage, AC or DC	6.3		Volts
Heater Current	0.6		Amperes
Heater Warm-up Time*	11		Seconds
Direct Interelectrode Capacitances, approximate†	Section 1	Section 2	
Grid to Plate	3.8	3.0	μμf
Input	2.0	3.5	μμf
Output	0.5	0.4	μμf

MECHANICAL

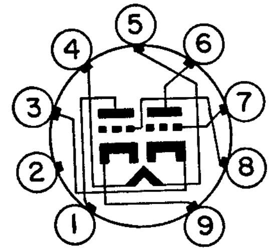
Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES UNLESS OTHERWISE INDICATED

	Vertical-Oscillator Service‡ (Section 1)	Vertical-Deflection Amplifier‡ (Section 2)	
DC Plate Voltage	500	500	Volts
Peak Positive Pulse Plate Voltage	—	2200§	Volts
Peak Negative Grid Voltage	200	200	Volts
Plate Dissipation	1.25	5.5π	Watts
DC Cathode Current	15	20	Milliamperes
Peak Cathode Current	70	70	Milliamperes
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid Circuit Resistance			
With Fixed Bias	2.2	1.0	Megohms
With Cathode Bias	2.2	2.5	Megohms
With Grid-Resistor Bias	2.2	—	Megohms

BASING DIAGRAM

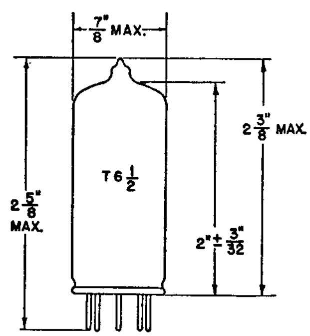


RETMA 9ES

TERMINAL CONNECTIONS

Pin 1—Plate (Section 2)
Pin 2—No Connection
Pin 3—Cathode (Section 1)
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate (Section 1)
Pin 7—Grid (Section 1)
Pin 8—Grid (Section 2)
Pin 9—Cathode (Section 2)

PHYSICAL DIMENSIONS



RETMA 6-3

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER	Section 1 (Oscillator)	Section 2 (Amplifier)	
Plate Voltage	200	250	Volts
Grid Voltage	−7	−8	Volts
Amplification Factor	21	18	
Plate Resistance, approximate	10500	4100	Ohms
Transconductance	2000	4400	Micromhos
Plate Current	5.0	20	Milliamperes
Plate Current, approximate			
Ec = −10 Volts	1	—	Milliamperes
Grid Voltage, approximate			
Ib = 10 Microamperes	−14	—	Volts

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† Without external shield.

‡ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

§ Value given is to be considered as an Absolute Maximum Rating. In this case, the combined effect of supply voltage variation, manufacturing variation including components in the equipment, and adjustment of equipment controls should not cause the rated value to be exceeded.

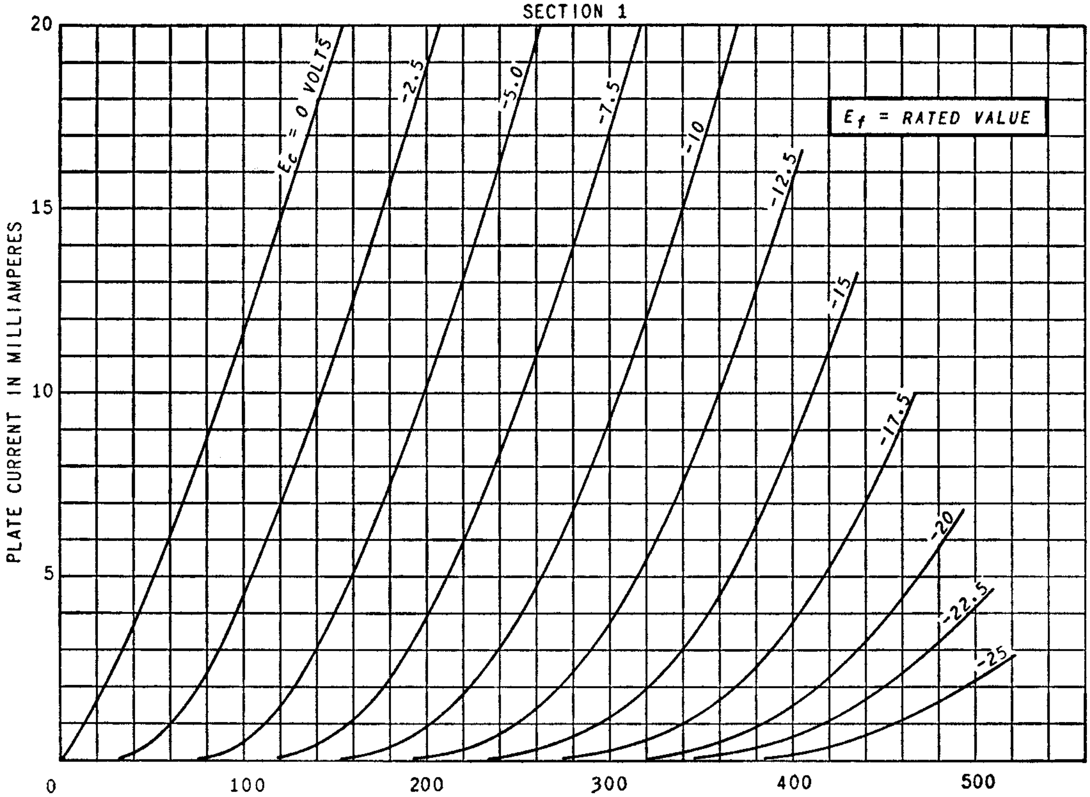
π In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

TUBE DEPARTMENT
GENERAL ELECTRIC
Schenectady 5, N. Y.

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AVERAGE PLATE CHARACTERISTICS

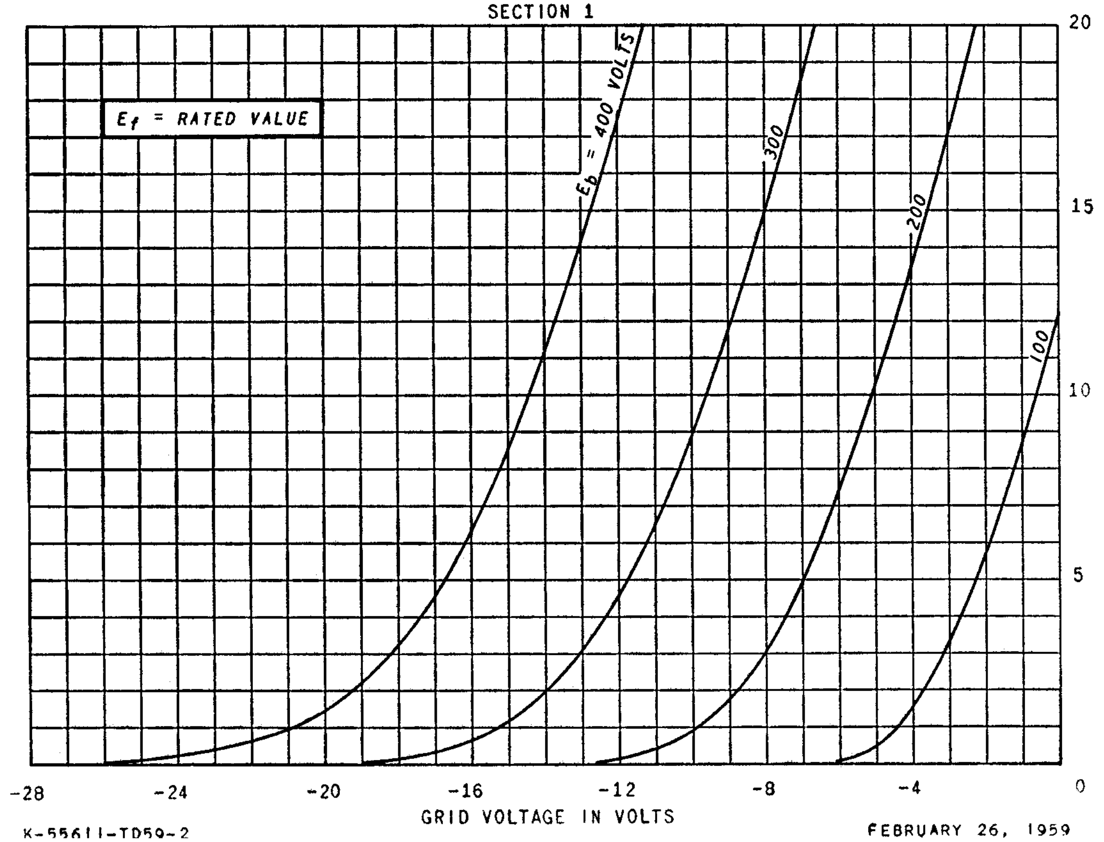
SECTION 1



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AVERAGE TRANSFER CHARACTERISTICS

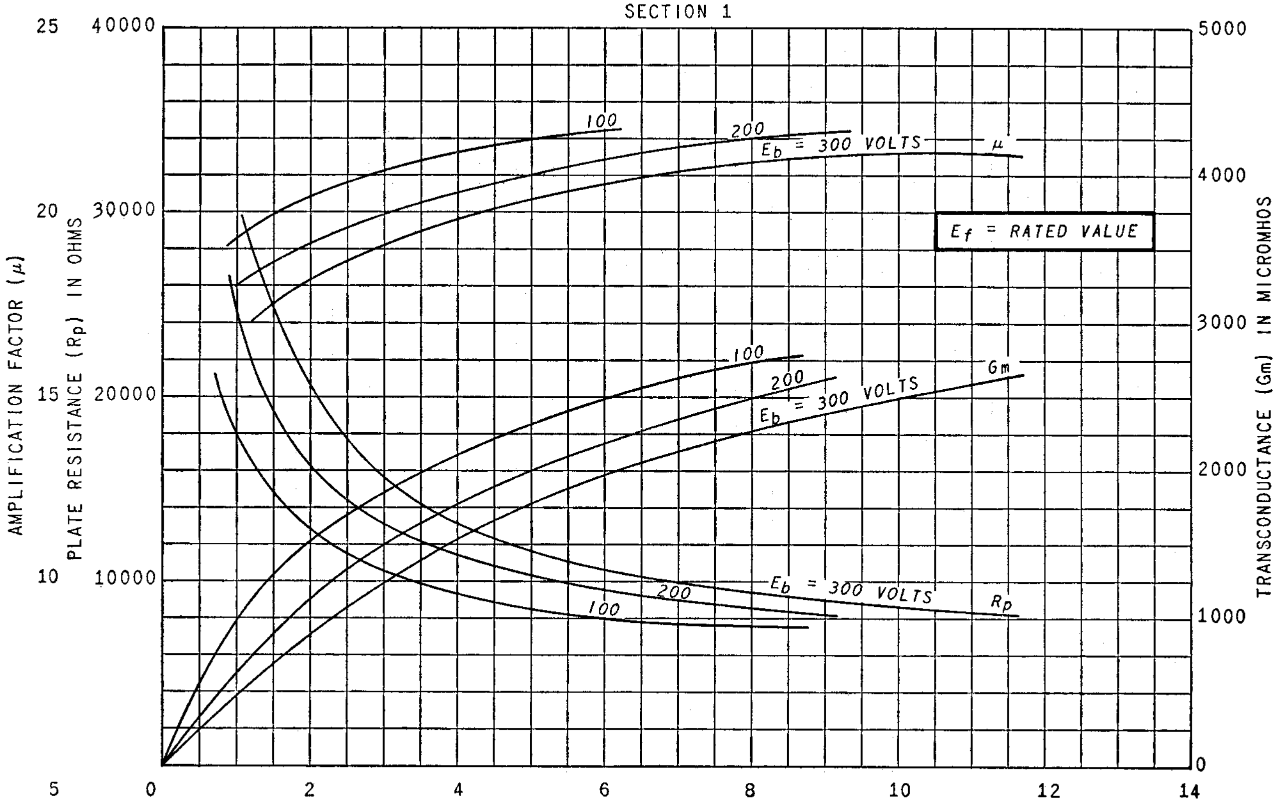
SECTION 1



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AVERAGE CHARACTERISTICS

SECTION 1

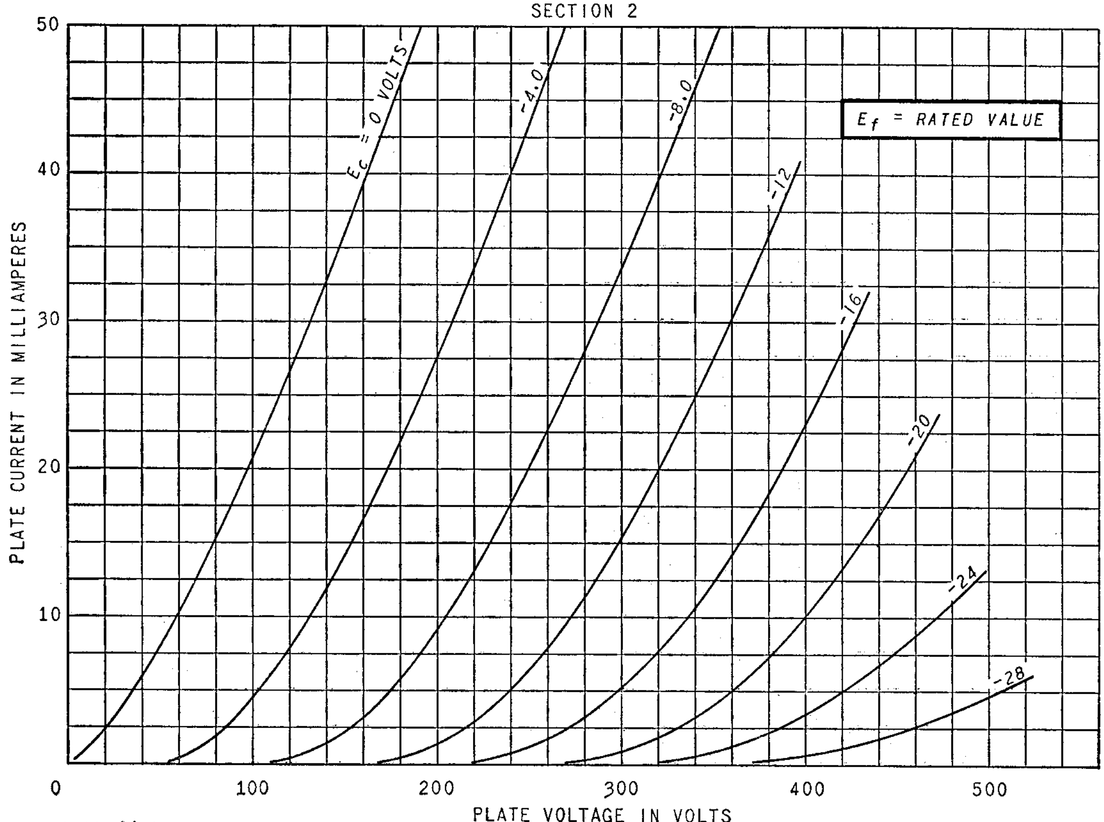


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AVERAGE PLATE CHARACTERISTICS

SECTION 2

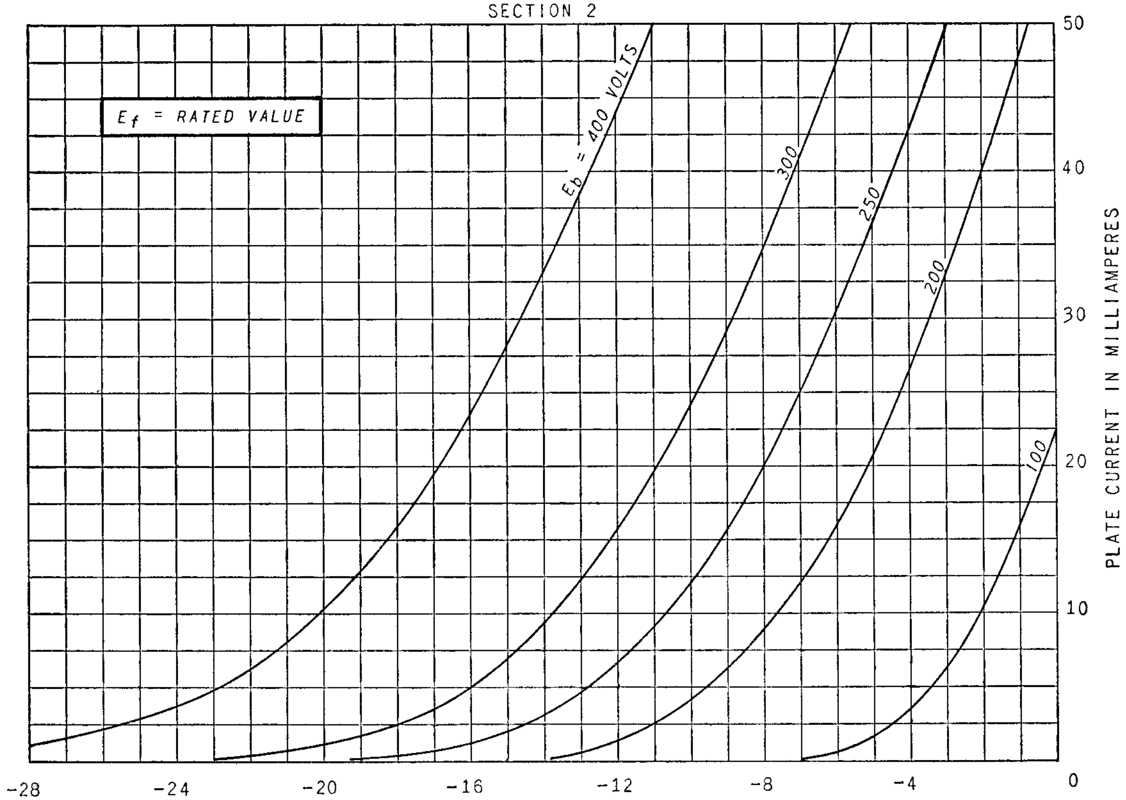


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AVERAGE TRANSFER CHARACTERISTICS

SECTION 2

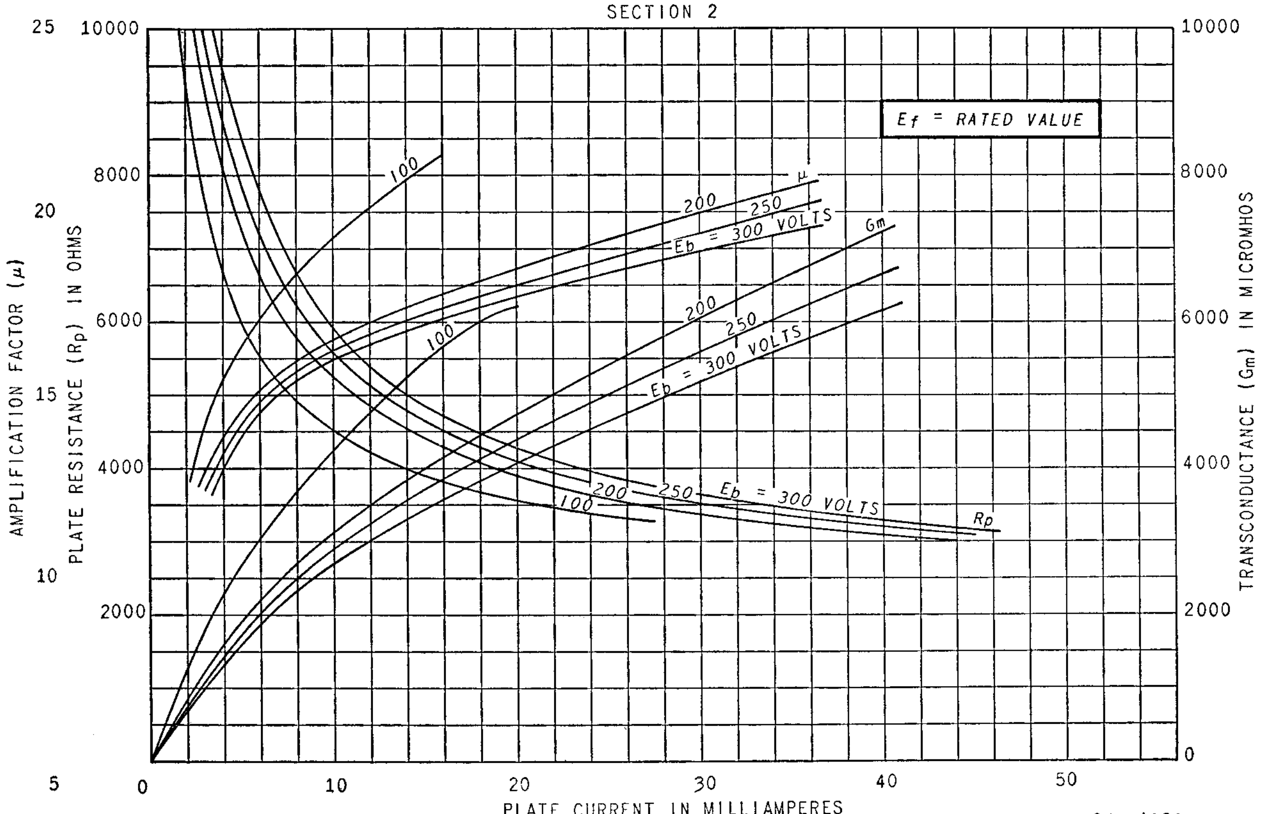


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AVERAGE CHARACTERISTICS

SECTION 2



K-55611-TD59-6

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